

In re Jones (CA FC) 21 USPQ2d 1941

## In re Jones

Decided February 28, 1992

No. 91-1380

### Headnotes

#### PATENTS

**1. Patentability/Validity -- Obviousness -- Relevant prior art -- Particular inventions (§ 115.0903.03)**

Claimed novel salt of acid commonly known as "dicamba" is not so closely related in structure to substituted ammonium salts disclosed in prior patent as to be prima facie obvious, since claimed salt is primary amine with ether linkage, whereas diethanolamino salt disclosed in reference patent is secondary amine without ether linkage, since claimed salt is plainly acyclic or linear, whereas morpholino salt, which is only substituted ammonium salt of dicamba with ether linkage disclosed in reference patent, is cyclic in structure, and since isopropylamino salt disclosed in reference patent is primary amine, but has iso-structure quite different from that of claimed salt.

**2. Patentability/Validity -- Obviousness -- Relevant prior art -- Particular inventions (§ 115.0903.03)**

Claimed novel salt of acid commonly known as "dicamba" cannot be held prima facie obvious in view of salts disclosed in prior patent, even though claimed salt is member of genus of substituted ammonium salts broadly disclosed in reference patent, since reference discloses potentially infinite genus of "substituted ammonium salts" of dicamba, and lists several such salts, but does not specifically disclose salt claimed in application, and since claimed salt is not sufficiently similar to those disclosed in reference as to render it prima facie obvious.

**3. Patentability/Validity -- Obviousness -- Combining references (§ 115.0905)**

Contention that one skilled in herbicidal art would have been motivated to use, with acid commonly known as "dicamba," substituted ammonium salt such as that disclosed in two prior references does not warrant holding that claimed substituted ammonium salt of dicamba for use as herbicide is prima facie obvious, since there is no suggestion for combining disclosures of those references either in references themselves, which are directed to shampoo additives and production of morpholine, respectively, or in knowledge generally available to those skilled in art.

**Case History and Disposition:**

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Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Rita S. Jones, Michael T. Chirchirillo and Johnny L. Burns, serial no. 07/099,279 (the 2-(2'-aminoethoxy)-ethanol salt of dicamba). From decision upholding rejection of only claim in application, applicants appeal. Reversed.

**Attorneys:**

Melvyn M. Kassenoff, East Hanover, N.J. (Gerald D. Sharkin and Richard E. Villa, East Hanover; Joanne M. Giesser, Palo Alto, Calif., with him on brief), for appellant.

Harris A. Pitlock, associate solicitor (Fred E. McKelvey, solicitor, with him on brief; Richard E. Schafer, of counsel), for appellee.

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**Judge:**

Before Rich, Archer, and Clevenger, circuit judges.

**Opinion Text**

**Opinion By:**

Rich, J.

Rita S. Jones et al. (collectively Jones) appeal from the April 15, 1991 decision of the Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences (Board), Appeal No. 90-1920, sustaining the rejection of claim 1, the only claim of application Ser.

No. 07/099,279, titled "The 2-(2'-Aminoethoxy) -- Ethanol Salt of Dicamba," as unpatentable under 35 USC 103. We conclude that the PTO has not presented a *prima facie* case of obviousness, and therefore *reverse*.

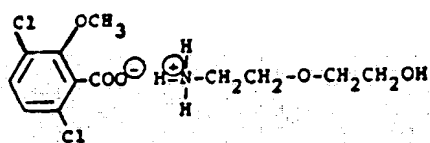
### The Invention

The Claimed invention is a novel salt of 2-methoxy-3, 6-dichlorobenzoic acid, which acid is commonly referred to as "dicamba." A known herbicide, dicamba has typically been sold in the form of its known dimethylamine salt.

The sole claim of the application on appeal reads:

1. The 2-(2'-aminoethoxy) ethanol salt of dicamba.

The claimed salt has the following structure:



### The Rejection

Claim 1 stands rejected as obvious in view of the combined teachings of the following references:

Richter, U.S. Patent No. 3,013,054, Dec. 12, 1961

Moyle et al., U.S. Patent No. 3,056,669, Oct. 2, 1962

Balassa, U.S. Patent No. 3,725,031, Apr. 3, 1973

Zorayan et al., 88 *Chem. Abstracts* No. 52300j, 1978

Wideman, 86 *Chem. Abstracts* No. 43711a, 1977

Richter, which all agree is the closest prior art, discloses dicamba in free acid, ester, and salt forms, for use as a herbicide. Among the salt forms disclosed are substituted ammonium salts, a genus which admittedly encompasses the claimed salt. Richter does not specifically disclose the claimed 2-(2'-aminoethoxy) ethanol salt, however. Most notably, Richter discloses (emphasis and bracketed word ours):

Compositions in which X is substituted ammonium are amine salts of 2-methoxy-3, 6-dichlorobenzoic acid [dicamba] and are prepared by the addition of the free acid to various amines. Typical amines which can be used to prepare such amine salts are dimethylamine, trimethylamine, triethylamine, diethanolamine, triethanolamine, isopropylamine, morpholine, and the like. *The resulting products are, respectively, the dimethylamino, trimethylamino, triethylamino, diethanolamino, triethanolamino, isopropylamino, and morpholino salts of 2-methoxy-3, 6-dichlorobenzoic acid.*

Zorayan teaches the amine  $\text{H}[\text{inf } 2]\text{N}(\text{CH}[\text{inf } 2]\text{CH}[\text{inf } 2]\text{O})[\text{inf } 2]\text{H}$  used to make the claimed salt, as well as the use of that amine in the preparation of surfactants for shampoos, bath preparations, and emulsifiers.

Wideman also teaches the amine disclosed in Zorayan.

The content of the remaining references is unnecessary to our decision.

The Board upheld the examiner's rejection of claim 1 as obvious, finding that the claimed 2-2'-aminoethoxy) ethanol salt of dicamba and the diethanolamine salt of dicamba specifically disclosed by Richter were "closely related in structure," and that based upon the expectation that "compounds similar in structure will have similar properties," a *prima facie* case of obviousness had arisen. The Board found that Jones' rebuttal evidence (Rule 132 declarations and data reported in the specification) failed to "compare the claimed subject matter with the closest prior art," and accordingly did not serve to rebut the *prima facie* case. This appeal followed.

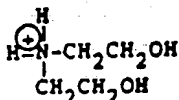
### Analysis

The Solicitor contends that the claimed salt falls within the genus of substituted amine salts of dicamba disclosed by Richter, and that, like Richter's genus, the claimed compound has herbicidal activity. Thus, the Solicitor urges, under the circumstances of this case, (1) the genus/species relationship and (2) the common utility of the claimed and prior art compounds support the Board's holding of *prima facie* obviousness. Moreover, the Solicitor adds, although the claimed compound is neither a homolog nor a position isomer of those salts specifically disclosed in Richter, it is structurally similar thereto, particularly the diethanolamino salt noted by the Board.

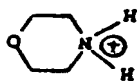
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The question of "structural similarity" in chemical patent cases has generated a body of patent law unto itself. 1 Particular types or categories of structural similarity without more have, in past cases, given rise to *prima facie* obviousness; *see, e.g., In re Dillon*, 919 F.2d 688, 692-94, 16 USPQ2d 1897, 1900-02 (Fed. Cir. 1990) (tri-orthoesters and tetra-orthoesters), *cert. denied*, \_\_\_ U.S. \_\_\_, 111 S. Ct. 1682 (1991); *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers); *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977) (adjacent homologs and structural isomers); *In re Hoch*, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970) (acid and ethyl ester). However, none of these types of structural similarity are involved here. And in any event, this court has previously stated that generalization is to be avoided insofar as specific structures are alleged to be *prima facie* obvious one from the other. *In re Grabiak*, 769 F.2d 729, 731, 226 USPQ 870, 872 (Fed. Cir. 1985).

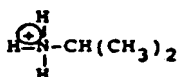
[1] On the basis of the record before us, we cannot sustain the Board's conclusion that the claimed salt and the diethanolamino salt disclosed by Richter are so "closely related in structure" as to render the former *prima facie* obvious in view of the latter. The claimed salt is a primary amine with an ether linkage. The diethanolamino salt disclosed by Richter is a secondary amine, without an ether linkage:



In addition, the only substituted ammonium salt of dicamba expressly disclosed by Richter having an ether linkage is the morpholino salt, which is *cyclic* in structure:



The claimed salt is, plainly, a cyclic; i.e., linear. Lastly, while the isopropylamino salt disclosed by Richter is a primary amine, as is the claimed salt, its iso- structure is quite different:



[2] The lack of close similarity of structure is not negated by the fact that the claimed salt is a member of Richter's broadly disclosed genus of substituted ammonium salts of dicamba. The Solicitor contends that "[t]he relative size of the genus disclosed by the prior art would not appear to be a controlling factor in determining whether a *prima facie* case of obviousness exists for a species encompassed within the described genus," citing *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 806-09, 10 USPQ2d 1843, 1845-48 (Fed. Cir.), *cert. denied*, \_\_\_ U.S. \_\_\_, 110 S. Ct. 498 (1989). We decline to extract from *Merck* the rule that the Solicitor appears to suggest -- that regardless of how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it. In *Merck*, at issue on appeal was whether claims to a composition of two diuretics, amiloride and hydrochlorothiazide, present in a particular "medically synergistic" weight ratio, would have been obvious in view of a specific prior art disclosure of amiloride in combination with hydrochlorothiazide, one of 1200 such combinations disclosed in the prior art reference. *Id.* at 806, 10 USPQ2d at 1845. Based on the facts before it, including evidence at trial that the experimentation needed to arrive at the claimed dosage was "nothing more than routine," *Id.* at 809, 10 USPQ2d at 1847, the court affirmed the trial court's determination of obviousness. In contrast, though Richter discloses the potentially infinite genus of "substituted ammonium salts" of dicamba, and lists several such salts, the salt claimed here is not specifically disclosed. Nor, as we have explained above, is the claimed salt sufficiently similar in structure to those specifically disclosed in Richter as to render it *prima facie* obvious. Every case, particularly those raising the issue of obviousness under section 103, must necessarily be decided upon its own facts.

[3] The Solicitor points out that, given the breadth of forms of dicamba (free acid, ester, or salt) disclosed by Richter as having herbicidal utility, one of ordinary skill in the art would appreciate that the dicamba group has significance with respect to imparting herbicidal activity to dicamba compounds. Thus, the Solicitor contends, one skilled in the art would have been motivated to use, with dicamba, substituted ammonium salts made from a known amine, such as the amine disclosed by Zorayan and Wideman, and would have expected such a salt to have herbicidal activity. Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion

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gestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598-99 (Fed. Cir. 1988). We see no such suggestion in Zorayan, which is directed to shampoo additives, nor in Wideman, which teaches that the amine used to make the claimed compound is a byproduct of the production of morpholine. Nor does the broad disclosure of Richter fill the gap, for the reasons discussed above.

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Conspicuously missing from this record is any *evidence*, other than the PTO's speculation (if it be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modifications of the prior art salts necessary to arrive at the claimed 2-(2'-aminoethoxy) ethanol salt. See *Gabiak*, 769 F.2d at 731-32, 226 USPQ at 872 ("[I]n the case before us there must be adequate support in the prior art for the [prior art] ester/ [claimed] thioester change in structure, in order to complete the PTO's *prima facie* case and shift the burden of going forward to the applicant."): *In re Lalu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984) ("The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound.")

**Conclusion**

We conclude that the PTO did not establish a *prima facie* case of obviousness, and thus did not shift to Jones the burden of coming forward with unexpected results or other objective evidence of non-obviousness. Accordingly, the decision of the Board is

*REVERSED.*

**Footnotes**

Footnote 1. See generally Helmuth A. Wegner, "Prima Facie Obviousness of Chemical Compounds," 6 *Am. Pat. L. Assoc. O. J.* 271 (1978).

**- End of Case -**



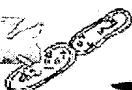
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## Chordata

*Taxonomy ID:* 7711*Preferred common name:* **chordates***Rank:* phylum*Genetic code:* Translation table 1 (Standard)*Mitochondrial genetic code:* Translation table 5*Other names:***chordates**[blast name]*Lineage( abbreviated )*Eukaryota; Metazoa☒ Nucleotide (11554856) ☐ Protein (394201) ☐ Structure (6805) ☐ Genome records (181)Comments and questions to [info@ncbi.nlm.nih.gov](mailto:info@ncbi.nlm.nih.gov)

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- **Cephalochordata**
  - **Branchiostomidae** (lancelets)
    - **Branchiostoma**
- **Craniata**
  - **Hyperotreti**
    - **Myxiniiformes**
  - **Vertebrata** (vertebrates)
    - **Gnathostomata** (jawed vertebrates)
    - **Hyperoartia**
- **Urochordata** (tunicates)
  - **Appendicularia** (appendicularians)
    - **Oikopleuridae**
  - **Ascidacea** (sea squirts)
    - **Enterogona**
    - **Stolidobranchia**
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## Craniata

*Taxonomy ID:* 89593*Rank:* subphylum*Genetic code:* Translation table 1 (Standard)*Mitochondrial genetic code:* Translation table 2*Lineage( abbreviated )*Eukaryota; Metazoa; Chordata

☒ Nucleotide (11373650) ☐ Protein (392892) ☐ Structure (6798) ☐ Genome records (178)

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○ Chelicerata

○ Arachnida

- Acari (mites and ticks)
- Amblypygi (tailless whip scorpions and whip spiders)
- Araneae (spiders)
- Opiliones (harvestmen)
- Palpigradi (microwhip scorpions)
- Pseudoscorpiones (false scorpions)
- Ricinulei (hooded tickspiders)
- Scorpiones (scorpions)
- Solifugae (sun spiders)
- Uropygi (whip scorpions)

○ Merostomata (horseshoe crabs)

- Xiphosura

○ Pycnogonida (sea spiders)

- Ammotheidae
- Anoplodactylidae
- Callipallenidae
- Colossendeidae
- Endeidae
- Nymphonidae
- Tanystylidae

○ Crustacea (crustaceans)

○ Branchiopoda

- Phyllopoda
- Sarsostraca

○ Cephalocarida (horseshoe shrimps)

- Brachypoda

○ Malacostraca

- Eumalacostraca
- Phyllocarida

○ Maxillopoda

- Branchiura
- Copepoda (copepods)
- Mystacocarida (mustache shrimps)
- Thecostraca

○ Ostracoda (mussel shrimps)

- Myodocopa
- Podocopa
- unclassified Ostracoda

- Remipedia
  - Nectiopoda
  - unclassified Remipedia
- Pentastomida (tongue worms)
  - Porocephalida
    - Porocephalidae
- Tracheata
  - Hexapoda (insects)
    - Diplura
    - Elliplura
    - Insecta (true insects)
  - Myriapoda
    - Chilopoda (centipedes)
    - Diplopoda (millipedes)
    - Pauropoda
    - Symphyla
- unclassified Arthropoda
  - Branchianella
    - Branchianella sp. 1
    - Branchianella sp. 2
    - Branchianella sp. 3
  - Unixenus
    - Unixenus mjobergi

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## Crustacea

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  - Lasionectes

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## Craniata

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## Arthropoda

*Taxonomy ID:* 6656*Rank:* phylum*Genetic code:* Translation table 1 (Standard)*Mitochondrial genetic code:* Translation table 5*Other names:***arthropods**[blast name]*Lineage( abbreviated )*Eukaryota; Metazoa☒ Nucleotide (661657) ☐ Protein (76024) ☐ Structure (291) ☐ Genome records (28)Comments and questions to [info@ncbi.nlm.nih.gov](mailto:info@ncbi.nlm.nih.gov)

Credits: Scott Federhen, Ian Harrison, Carol Hottel, Detlef Leipe, Vladimir Sousoy, Richard Sean Turner.

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Taxonomy

Structure

Search for  As  ☒ lock  Display levels  ☐ nucleotides ☐ proteins ☐ structures ☐ genome records **Lineage** (abbreviated): root; Eukaryota; Metazoa○ **Arthropoda** Click on name to get more information.○ **Chelicerata**○ **Arachnida**

- **Acari** (mites and ticks)
- **Amblypygi** (tailless whip scorpions and whip spiders)
- **Araneae** (spiders)
- **Opiliones** (harvestmen)
- **Palpigradi** (microwhip scorpions)
- **Pseudoscorpiones** (false scorpions)
- **Ricinulei** (hooded tickspiders)
- **Scorpiones** (scorpions)
- **Solifugae** (sun spiders)
- **Uropygi** (whip scorpions)

○ **Merostomata** (horseshoe crabs)• **Xiphosura**○ **Pycnogonida** (sea spiders)

- **Ammotheidae**
- **Anoplodactylidae**
- **Callipallenidae**
- **Colossendeidae**
- **Endeidae**
- **Nymphonidae**
- **Tanystylidae**

○ **Crustacea** (crustaceans)○ **Branchiopoda**

- **Phyllopoda**
- **Sarsostraca**

○ **Cephalocarida** (horseshoe shrimps)• **Brachypoda**○ **Malacostraca**

- **Eumalacostraca**
- **Phyllocarida**

○ **Maxillopoda**

- **Branchiura**
- **Copepoda** (copepods)
- **Mystacocarida** (mustache shrimps)
- **Thecostraca**

○ **Ostracoda** (mussel shrimps)

- **Myodocopa**
- **Podocopa**
- **unclassified Ostracoda**

- Remipedia
  - Nectiopoda
  - unclassified Remipedia
- Pentastomida (tongue worms)
  - Porocephalida
    - Porocephalidae
- Tracheata
  - Hexapoda (insects)
    - Diplura
    - Elliplura
    - Insecta (true insects)
  - Myriapoda
    - Chilopoda (centipedes)
    - Diplopoda (millipedes)
    - Pauropoda
    - Symphyla
- unclassified Arthropoda
  - Branchianella
    - Branchianella sp. 1
    - Branchianella sp. 2
    - Branchianella sp. 3
  - Unixenus
    - Unixenus mjobergi

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